

ABSTRACT OF THE DISCLOSURE

An arrangement and a method for controlling a combustion engine, e.g. of the type called HCCI engine. A control unit is operable for controlling the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{opt}) within a load range (L_{tot}). The load range (L_{tot}) can be divided into at least two subranges (L_{II} , L_{III}). The control unit is operable to controlling the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{opt}) within one of the subranges (L_{II}) by a strategy (II) which entails the effective compression ratio (c) in the cylinder being varied, and within the second subrange (L_{III}) by another strategy (III) which entails a variable amount of cooled exhaust gases (ceg) being led to the combustion chamber also enabling in the second subrange (L_{III}) to control the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{opt}) by variation of the effective compression ratio (c) in the cylinder without it falling below a lowest acceptable value (c_{min}).